



Powering Agriculture Network and Wiki Portal

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Powering Agriculture

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Overview

1. The international initiative „Powering Agriculture: An Energy Grand Challenge for Development“
2. Powering Agriculture German contribution
3. Knowledge management and sharing
 - PoweringAg Wiki Portal
 - PoweringAg Technology Database





The International Initiative PAEGC

Technology Lifecycle



Powering Ag Mechanisms





Knowledge Management and Sharing

Powering Agriculture BMZ / GIZ in kind:

Develop and promote concepts for increased agricultural productivity brought about by clean energy solutions

Activities:

- Public Private Partnership e.g. clean energy options for cotton industries in Cameroun and Zambia
- Cooperation with development programs for promotion of clean energy solutions in agricultural value chains, e.g. biogas in agric, SME in Kenia
- Agenda setting in GER
- Analytical & methodological studies, e.g. handbook & toolbox on solar powered irrigation systems
- Support to networking and knowledge sharing, e.g. database on clean energy solutions in agriculture





Tools for Knowledge Management and Sharing



Wiki Portal



PoweringAg
Technology Database

PoweringAg Technology Database

The screenshot displays two web interfaces side-by-side. On the left is the 'energypedia' Wiki Portal, featuring a search bar, navigation tabs for 'Portal' and 'Discussion', and a sidebar with categories like 'About energypedia', 'Technologies', 'Energy Use', and 'Cross Cutting Issues'. The main content area shows a 'Welcome' message and a list of articles. On the right is the 'PoweringAg Technology Database', which includes a search bar, navigation tabs for 'Start', 'Browse', 'Search', 'Add', and 'Help', and a sidebar with 'About energypedia' and 'Technologies'. The main content area shows an 'About' section with text about energy use in food production. A large, jagged, star-shaped graphic is overlaid on the center of the screenshot, containing a list of five actions: 'Get information', 'Share what you know', 'Discuss the latest issues and problems', 'Tell people about publications and events', and 'Meet people'. Each action is preceded by a double arrow '»»'. The bottom of the screenshot shows a 'Value Chain Step' section with icons for 'Agriculture Commodity', 'Source of Energy', and 'Value Chain Step'.

»» Get information

»» Share what you know

»» Discuss the latest issues and problems

»» Tell people about publications and events

»» Meet people



Wiki Portal „Powering Agriculture“

https://energypedia.info/wiki/Portal:Powering_Agriculture

PURPOSE

- Platform for experts on the energy/agriculture nexus
- Develop, disseminate and co-create solutions for energy smart agriculture
- Bring together academia, investors, private businesses, science, development practitioners, civil society
- Enable & encourage networking



USER BENEFITS

- Pool of knowledge and expertise
- Get information – share information
- Interaction with experts – cross-border & interdisciplinary
- Information service on current events, literature, technology advancements
- Access to best practices, lessons learnt, case studies



Example of an Article: Business Plan Solar *Powered Processing of Tomatoes*

Project

- Promotion of micro and small enterprises for tomato processing using solar power in Ethiopia
- Partner: TAMPA (Tigray Agricultural Marketing Promotion Agency) and German supported Sustainable Land Management Programme (GIZ SLMP)
- Target groups: cooperatives of tomato farmers producing in remote areas without access to electrical power (2014: only 14% of the Ethiopian population has access to grid power)



Business Plan with

- Marketing plan
- Production plan
- Financial plan (investment cost, variable costs, fixed costs)
- Management plan



PoweringAg Technology Database

https://energypedia.info/wiki/PoweringAg_Technology_Database

Purpose: Provide an overview of energy smart technologies
→ i.e. technologies for the application of renewable and
efficient energy for agricultural value chains

Details:

- It's an interactive platform – users can add, improve and further develop the database
- It targets experts from energy and agriculture
- It informs about technologies for mechanization, production, preservation etc.
- It informs about technologies driven by different energy sources: solar, wind, hydro, biomass etc.
- ...for different agricultural commodity groups





Entry Points



Agricultural Commodity

Show sub-types

Cereals
Fruits and vegetables
Nuts and berries
Forage
Dairy products
Meat products
Oil Seeds
Roots and Tubers
Eggs
Pulses
Fiber Crops
Forestry



Source of Energy

Show sub-types

Solar
Wind
Hydro
Biomass
Biogas
Biofuel
Geo-Thermal
Energy Efficiency



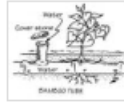
Value Chain Step

Show sub-types

Mechanization
Efficiency of Operation
Processing
Mechanical Sorting
Preservation
Transportation
Controlled Atmosphere
Controlled Temperature

Example: Appropriate Irrigation

- Description
- Which agricultural value chain activity
- For which commodity group
- Developed in which region
- Deployed in which region
- Economics
- Technology development level
- Required maintenance & infrastructure
- Required resources during manufacture & during operation
- Deployment capability & potential
- Requirements for deployment
- Environmental impacts

Name of technology example:	Type		
Appropriate Irrigation	 <input checked="" type="checkbox"/> Energy Efficiency <input type="checkbox"/> Renewable Energy <input checked="" type="checkbox"/> Alternative Methodology		
Description	<p>Irrigation is the artificial application of water to the land or soil. It is used to assist in the growing of agricultural crops, maintenance of landscapes, and revegetation of disturbed soils in dry areas and during periods of inadequate rainfall. Additionally, irrigation also has a few other uses in crop production, which include protecting plants against frost, suppressing weed growth in grain fields and preventing soil consolidation. In contrast, agriculture that relies only on direct rainfall is referred to as rain-fed or dryland farming.</p> <p>Irrigation has been a central feature of agriculture for over 5000 years, and was the basis of the economy and society of numerous societies, ranging from Asia to Arizona.</p> <p>(Source: http://en.wikipedia.org/wiki/Irrigation)</p> <p>Water scarcity in many regions demands appropriate irrigation systems.</p> <ol style="list-style-type: none"> 1. Surface irrigation Running or impounding water over the surface and allowing it to saturate the soil to some depth; 2. Sprinkle irrigation Spraying water into the air and allowing it to fall on to plants and soil as simulated rainfall; 3. Drip irrigation Dripping water on to a fraction of the ground surface so as to infiltrate it into the root zone; 4. Subsurface exuders Introducing the water directly into the root zone by means of porous receptacles; 5. Subirrigation Raising the water-table from below (in places where the groundwater is shallow and controllable) so as to moisten the root zone by capillary action; <p>(Source: http://www.fao.org/docrep/W3094E/w3094e05.htm)</p>		
Technology for the Application of	<input type="checkbox"/> Solar <input type="checkbox"/> Biogas <input type="checkbox"/> Hydro <input checked="" type="checkbox"/> Other: Water efficiency	<input type="checkbox"/> Biomass <input type="checkbox"/> Wind <input type="checkbox"/> Energy Efficiency	<input type="checkbox"/> Biofuel <input type="checkbox"/> Geo-Thermal
Primarily Relevant for the following Agricultural Value Chain Steps	<input type="checkbox"/> Mechanization <input type="checkbox"/> Transportation <input type="checkbox"/> Mechanical Sorting <input checked="" type="checkbox"/> Other: Cultivation	<input type="checkbox"/> Efficiency of Operation <input type="checkbox"/> Controlled Atmosphere <input type="checkbox"/> Preservation	<input type="checkbox"/> Processing <input type="checkbox"/> Controlled Temperature
Primarily Relevant for the following Agricultural Value Chain Activities	<input type="checkbox"/> Grinding <input type="checkbox"/> Seedbed Preparation <input type="checkbox"/> Planting <input type="checkbox"/> Pumping <input checked="" type="checkbox"/> Irrigation <input type="checkbox"/> Fertilizing <input type="checkbox"/> Pest Management <input type="checkbox"/> Cutting <input type="checkbox"/> Other: /	<input type="checkbox"/> Hauling and conveying <input type="checkbox"/> Milling <input type="checkbox"/> Washing <input type="checkbox"/> Heating <input type="checkbox"/> Cooling <input type="checkbox"/> Venting <input type="checkbox"/> Lighting <input type="checkbox"/> Sanitation	<input type="checkbox"/> Sorting <input type="checkbox"/> Tearing <input type="checkbox"/> Mixing <input type="checkbox"/> Drying <input type="checkbox"/> Animal feeding <input type="checkbox"/> Animal health and Welfare <input type="checkbox"/> Packing and branding
Primarily Implemented in the following Commodity Groups	<input checked="" type="checkbox"/> Cereals <input checked="" type="checkbox"/> Forage <input checked="" type="checkbox"/> Oil Seeds <input checked="" type="checkbox"/> Pulses <input checked="" type="checkbox"/> Sugars <input type="checkbox"/> Other: /	<input checked="" type="checkbox"/> Fruits and vegetables <input type="checkbox"/> Dairy products <input checked="" type="checkbox"/> Roots and Tubers <input checked="" type="checkbox"/> Fiber Crops <input checked="" type="checkbox"/> Stimulants	<input checked="" type="checkbox"/> Nuts and berries <input type="checkbox"/> Meat products <input type="checkbox"/> Eggs <input checked="" type="checkbox"/> Forestry <input checked="" type="checkbox"/> Spices



Become part of it!



Powering
Agriculture

Thanks you for your attention.

